NSA member Colonel John Newman purchased a Stereo Realist camera at an antique fair in DeLand, Florida on January 18, 1986. His Florida home is in Ormond Beach, about 60 miles north of Cape Canaveral, and he decided to try out his "new" camera a few days later during the scheduled launch of the Shuttle Challenger.

With no meter handy, he guessed at an exposure of 1/100th at f/8 for the Kodachrome 64 film he had loaded in the Realist. Then, from his front door, he shot a series of slides of the launch with a tree in the yard providing some stereo effect against the houses across the street and the rocket trails 60 miles to the south. He mentions in a note with the slides, "I was so busy snapping that I didn't know anything had gone wrong until it was all over."

The two slides reproduced here are from the middle of the sequence, and show the immediate aftermath of the explosion. Images both tragic and historic to be the first ones shot with a new camera! The story also prompts the question, does NASA make any effort to get synchronized hyperstereo images of launches from tracking cameras near the cape? Even if the answer is no, there may somewhere, among the miles of film shot of the launch, be an accidental hyperstereo pair or two awaiting only someone with the time to find them, identify synchronized frames, and make the needed image size corrections. Truly a job for a dedicated stereo fanatic!
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COVER: Railroad crew moving bridge timber on handcar, Flagstaff, July, 1883. From a Ben Wittick stereo negative in the collection of the Museum of New Mexico. One of several rare views illustrating the installments of ARIZONA TERRITORIAL STEREOGRAPHY by Bruce Hooper in this issue.
Progress toward a color issue of STEREO WORLD has been slow in terms of actual pledges. To date, only about $340.00 has been promised by those most enthusiastic about the idea. On the other hand, nearly everyone we’ve heard from supports the concept—so we’ll continue searching for ways to eventually publish a full color section of both vintage and recent stereo images. As stated before, the project will not be allowed to limit the usual range of material in the magazine or to undermine the finances of the NSA. Some letters have included a suggestion to cover the cost of a color issue with a dues increase, but those folks are so far in a clear minority.

EXPLAIN THE WORLD

The most painless way to finance any improvement in a magazine is of course to increase circulation. The success of the NSA and STEREO WORLD depends on finding the widest possible circle of shared interests, ideas and images. Both of these considerations led to the production of a new, special brochure that explains in illustrated detail just what STEREO WORLD is all about. YOU can help expand membership and improve the scope and quality of the magazine by placing a few of these folders in strategic locations like photographica shows, antique shops, camera club exhibits/lectures, or the counters or bulletin boards of camera stores—especially those dealing in used cameras. Supplies are somewhat limited, so please order only as many as you are confident you can place in good locations. This folder does not replace the regular NSA membership folder, and both are available from John Weiler c/o NSA, PO BOX 14801, Columbus, OH 43214.

CORRECTIONS:

1) The “STERE-OZ-ICON” views mentioned in the Sept./Oct. issue are NOT available for sale. Rights to the drawings in the OZ books are available only to members of the International Wizard of Oz Club at a convention several years ago. Artist Bill Eubank did a similar set of _Alice in Wonderland_ drawings which he does hope to publish for general sale someday.

2) In the May/June article “3-D in BC” the 70mm Ontario pavilion film is identified as using the StereoVision(TM) system. The correct name of the system used is StereoSpace—a similar name but belonging to an entirely different company.

A HOME FOR THE '87 NSA CONVENTION!

After plans had been explored for both Pittsburgh and Washington D.C., word has arrived as we go to press that the 1987 NSA Convention will be held at the George Washington Motor Lodge in King of Prussia, PA (just outside Philadelphia) the weekend of June 27-28. The location is also very close to the Holmes Library, and more details will be included in the coverage of this year’s convention in Riverside, CA in the Sept./Oct. issue.

—John Dennis

H.C. WHITE COMPANY EXHIBITION

The Park-McCullough House Association of North Bennington, Vermont, has announced the exhibit “North Bennington Remembered: The Works of the H.C. White Company”, which will remain on view in this 1865 Victorian mansion through August 28, 1986. This exhibition follows the career of Hawley C. White, whose company produced high-quality stereoscopes and stereographs until 1915, when it switched to juvenile vehicles and furniture. NSA members are specially invited to attend. The Park-McCullough House is open seven days a week from 10-4 daily and 10-2 Saturday, and an admission is charged. Call (802) 442-5441 for more information.
Comment

CHATEAU STEROE

Your recent article on YMCA Views from WWI (Society Notebook, Mar./Apr. 1986) had a particularly personal impact on me. My grandfather, who died years before I was born from long term effects of mustard gas, kept a diary. Among other places, he served at Chateau Thierry. After days of brutal experiences, he finally got leave from the front. He went to Chateau Thierry where he: "Visited YMCA. Spent my last coin except one U.S. Nickle."

Keystone #19157, "The Y.M.C.A. at Chateau Thierry" brings this passage alive as nothing short of being there at the time can do as well as stereo! Thank you!

David Mooney
Pittsburgh, PA

REEL TIME

The May 19, 1986 issue of Time magazine has as its cover story, the baby boomers turning 40. The cover has a collection of things that today's yuppies remember from their youth. Among them is an old single reel View-Master envelope. In their rush for success, today's yuppies haven't forgotten the fun they had with 3-D as children.

Kent Bedford
Canton, OH

VIEWER LENSES

Articles by John Martz and Paul Wing made an excellent pair in the March/April issue. The John Martz suggestion to salvage binocular objectives for stereoscope use is a good one—and far simpler/cheaper than hunting down the same lenses elsewhere. The chromatic aberration of simple lenses does occasionally detract from the viewing of B&W prints, and color prints are sometimes seen to have color-differentiated depth (barber poles for instance).

But standard stereoscope lenses are 200mm in focal length, and you might be somewhat disappointed in the loss of sharpness and depth enhancement when examined so close as with 120mm lenses. Also, because most folks "crowd in" on a view (at less than full focal length) the optical centers of the lenses should be separated by more than the 3 1/4" to 3 3/8" maximum homologous point separations found in standard views (like Keystones and Underwoods).

I suggest that you seek binocular objectives of about 2 inches clear aperture (2.8" would be needed to retrofit a Red Wing Viewer) and something closer to a 200mm focal length.

There is more to depth perception (I think David Burder did some group experiments to demonstrate this) than orthostereo base/focal length ratios would suggest. When “taking in” a scene in real life, one's head is almost always in motion—giving the experience of a base line wider than that between the eyes. The small enhancement of lenses used at—say—175mm is usually welcome except for adult portraiture. Note Paul Wing's satisfaction with the 60mm De Wijs lenses to view transparencies made with 35mm Realist lenses. (The equivalent focal length of enlarged Realist format negatives is nearly the same as that of the antique cameras that Martz refers to.)

Craig Daniels
Red Wing, MN

SEE YOUR STEREO SLIDES ON 3-D VIDEO TAPE!?!?

A firm called Filmview Video is now offering a transfer service in which stereo pairs of 35mm, 126, or 110 slides are presented (for 30 seconds each) as color anaglyphs on one or two hour video cassettes, or a 12 minute show of 18 3-D scenes with a pair of 3-D glasses included. Audio dubbing is also offered for an extra charge. The promotional material from the company includes instructions for taking sequential stereo pairs with an ordinary camera, for the benefit of its regular slide-to-tape transfer customers. (No mention is made of making 3-D videos from Realist format slides!)

Anyone thinking of trying this service should remember that home video tapes are ill-suited for providing good anaglyphic images. Slides should only be selected from those with fairly simple images of low contrast and without colors in conflict with the anaglyphic glasses. For prices and order forms, contact Filmview Video, PO Box 2171, Landover Hills, MD 20784.
The Rise of Stereography in Arizona
1875-1880
by Bruce Hooper

This is the second installment of a four part series on stereo photographers and publishers active in Arizona during the territorial years. Part I covered the early years (1864-1874). Part II will deal with the stereography of Arizona railroads from 1875 to 1880. Part IV will cover the work of the larger publishers from 1890 to 1906.

The principal stereographers in Arizona Territory during the 1870s were W. H. Williscraft and D. F. Mitchell in Prescott, Henry Buehman in Tucson, and George H. Rothrock in Phoenix. Stereopticon and Sciopticon (Magic Lantern) exhibitions were very popular at this time. Stereographs could be acquired by visiting the photographer’s gallery, a local merchant who distributed the photographer’s views, or by ordering through the mail. The latter practice was used by Buehman and Rothrock, who advertised in the Weekly Arizona Miner (Prescott) during the late 1870s and early 1880s. The largest photograph galleries were Buehman’s, Mitchell’s and Rothrock’s.

Henry Buehman was born in Bremen, Germany on May 14, 1851. He worked as a photographer’s apprentice at fourteen; at seventeen, he took the North German steamer Lloyd to America, and stayed in New York City for two weeks. Buehman took another steamer to San Francisco. Here, he stayed for a year, working as an operator for the firm of Bradley & Rulofson. He established a gallery in Visalia, California that lasted for two years. Buehman next became an itinerant travelling for three years throughout California, Utah and Nevada. Early in the summer of 1874, he arrived in Arizona, staying in Prescott and then moving south to Tucson. He had intended to go to Mexico from Tucson. During the summer of 1874, he established himself as Tucson’s principal photographer.

Buehman’s first major stereographic tour took place on December 5, 1875 when he left for six weeks for Camps Bowie, Grant, Apache and San Carlos. In April 1876, he stereographed San Xavier del Bac and during July he toured along the Santa Cruz River, visited San Xavier, Camps Bowie, Grant, Apache and San Carlos again and stereographed Tucson from various standpoints. In September, he sent a dozen stereographs to the Weekly Miner office in Prescott, offering them for fifty cents each by mail. There were views of Apache Indians, cacti, and other curiosities. In 1877, Buehman photographed members of the Legislature (February), visited a mine in the Huachuca Mountains with George Roskruge and Edwards (March), and stereographed the annual feast at Magdalena in Sonora, Mexico (October). During September, someone named E. T. Wimple had a stereopticon exhibition in Tucson and later Sonora. These were instructive and humorous views, except I do not know if these were taken by Wimple.

During the Summer of 1878, Buehman was in San Francisco visiting friends and relatives and purchasing stock for his gallery. In July, he returned from San Francisco with his brother-in-law, Mr. Patch, who was in ill health. During January 1879, Buehman had for sale mouldings, picture frames, chromos and large size views of Yosemite. In June, Alfred S. Addis and Porter opened a competing gallery on Meyers Street, south of the Palace Hotel. Addis was a stereographer, probably from Los Angeles. During December Addis left for Silver City, New Mexico and planned on his return to stereograph mining towns and military posts. Also in June, Buehman stereographed the Silver King Mine and exhibited these views in the Arizona Weekly Star cabinet. During the Fall, he stereographed eastern Arizona offering views for sale in November. In September 1880, Buehman enlarged and improved his gallery. During the 1880s, Buehman formed a partnership with F. A. Hartwell and continued taking stereographs.

Yuma ferry landing, 1876, green mount. (All views reproduced in Part II are by G.H. Rothrock.) Photo courtesy Arizona Historical Society, Tucson.
Beuhman's stereographs are on orange/lavender mounts with subject matter consisting of street scenes, burros, Indians, mines, forts, cacti, and important sites. Stereographs are cabinet or standard size with square or domed prints. Captions are on the back of each mount. Series are "Arizona Scenes," or "Scenes in Arizona." The print on the front of each mount is Gothic, cursive, long, narrow letters, or block letters. On the front of the mount is printed H. BUEHMAN, Photographer/TUCSON, A.T.; Arizona Scenes by h. Buehman/Arizona Scenes by h. Buehman; H. BUEHMAN, TUCSON, A.T./ARIZONA SCENERY; and SCENES IN ARIZONA BY H. BUEHMAN./SCENES IN ARIZONA BY H. BUEHMAN, Buehman & Hartwell stereographs are on cabinet size orange/light purple mounts.

During the mid to late 1870s, as Buehman's gallery flourished in Tucson, other developments were taking place in Prescott. In the Fall of 1875, W. H. Williscraft acquired William McKenna's gallery. The studio was open for a short time and then closed. In April 1876, Williscraft's gallery reopened. He had the help of an operator from San Francisco and Los Angeles called Mr. Shroeder. This is a correction to the last article. During May, Williscraft placed his gallery on wheels and proposed taking views from "Cu-din-e-yo', Apache Indian, 1877, green mount. Photo courtesy Arizona Historical Society, Tucson.
various points about Prescott. In July, he moved his boot and shoe shop from the corner of Cortez and Willis to the corner of Cortez and Gurley, next to his photograph gallery. On November 11th, he moved his studio to Camp Verde. Early in 1877, D. F. Mitchell left for Mohave County. Mitchell went to stereograph the countryside and photograph the residents, while Williscraft was involved with mining matters. Mitchell was supposed to return to Prescott but Williscraft stayed behind in the town of Hardyville. Williscraft during the late 1870s was an Assayer in Yavapai and Mohave counties. He occasionally visited Prescott. Williscraft settled at Walnut Creek in 1880. Mitchell returned to Prescott during May taking over the Williscraft gallery. In September, he sent two stereographs of Prescott's school house to the Miner office. Early in 1878, the stereographer, George H. Rothrock made a brief visit to
Prescott. Late in January, Mitchell & Rothrock took a series of stereographs of Prescott and vicinity. During late July and early August, Mitchell stereographed the north side of Gurley Street from C. P. Head & Co.'s to the school house, two views from different standpoints of the new courtroom, a general view of Fort Whipple, a front view of the Department headquarters of Prescott's barracks and a view of the Miner office with foreman and other attaches in the foreground. Late in August, Mitchell stereographed the courthouse again. Mitchell occasionally travelled to Phoenix and took one noteworthy photograph of Madison Larkin at Loring's Bazaar guarding twelve bars of silver.

The firms of D.F. Mitchell, Mitchell & Baer, and Erwin Baer photographed and stereographed much of Prescott, Northern Arizona, and other parts of the Territory throughout the nineteenth century. Much of the stereographic coverage in Arizona Territory was limited to the general area in which the stereographer lived. There was a lot of duplication. The most extensive coverage of Arizona Territory was by the stereographer, George H. Rothrock.

George H. Rothrock was born in Missouri in 1843 and grew up on a ranch near Marysville, California. Before learning photography, he worked as a cowboy, miner, and store clerk. During the early 1870s, he established a gallery in Bakersfield. Late in 1875, he met a photographer named Young and travelled with him to Arizona Territory. Early in 1876 Young & Rothrock arrived in Yuma, pitching their tent on Main Street and offering for sale ambrotypes, 8 x 10' cards, cartes, cabinet cards, and stereographs. During March, Young held two sciopticon (Magic Lantern) exhibitions, one on March 19th at the courthouse and the other at Fort Yuma. Rothrock took a series of stereographs of the ferry landing and buildings in Yuma and stayed in Yuma until the early summer, then left for Ehrenberg, Fort Mohave and Mineral Park. Young stayed in Yuma, waiting for photo supplies. Late in 1876, Rothrock and Young reunited briefly in Phoenix, before Young died of pneumonia. During 1877, Rothrock took the earliest stereographs of the Casa Grande ruins. From there, he travelled to Florence, Camp McDowell and back to Phoenix for supplies. Rothrock left Phoenix again for an extensive tour of the territory. He visited Sacaton, Tucson, San Xavier del Bac, Camps Grant and Bowie, Solomonville, San Carlos, Camp Apache, Snowflake, Saint Joseph, and Camp Verde. Before visiting Prescott, he stereographed Montezuma's Well and Castle and Oak Creek Canyon. On December 4, 1877, the Miner office in Prescott received a set of stereographs from Rothrock, comprising views of Aztec ruins, cave dwelling, Arizona Shrubbery, Indian
police at San Carlos, San Xavier and other views. They covered several hundred different scenes of the most noted objects and scenery throughout the territory. Rothrock arrived in Prescott in January 1878 establishing a studio on Montezuma Street at the former assay office of Jay G. Kelley's. While in Prescott, he took street scenes and stereographs from different standpoints outside the town. In February, Rothrock found some photographs of Prescott that were taken in 1864. He also had a catalogue of his views printed. Rothrock took some stereographs with the local photographer, D. F. Mitchell. In March, he left Prescott for southern Arizona. On his return trip to Phoenix, Rothrock stereographed mining towns, most notably, Gillette (Gillet).

Rothrock arrived in Phoenix in April, forming a temporary partnership with Loring. They established a studio at the News Depot. This studio was very quickly moved to Loring's Bazaar on Washington Street. Early in December, he held a sciopticon exhibition and erected a photograph gallery on the east side of the Plaza. Late in 1879, he visited Camp McDowell. During the 1880s, Rothrock continued touring Arizona Territory. In December 1880, he photographed Vulture City and in 1881, he stereographed Fort Apache again. From November 10th to the 16th 1884, the Arizona Industrial Exposition was held in Phoenix. Here, Rothrock received the First Premium Award for his photographs. In 1893, he moved his gallery to Tempe. He later gave up the photography business, becoming a farmer and an employee for the Arizona Canal Company. Rothrock died in 1920.

Rothrock has left behind a very rich stereographic record of Arizona's development. His stereographs are on orange/lavender, orange/pink, green and gray mounts in both cabinet and standard sizes. Prints are square or domed. Captions are written on the back in manuscript. Issues from 1878 onward have printed on the back: G. H. Rothrock's/Arizona Scenery/Phoenix, Arizona. After 1884, Rothrock added to the back of the mount: First Premium awarded by the Arizona Industrial Exposition 1884. His earliest issues have the series printed on the front in block letters: G. H. ROTHROCK'S/ARIZONA SCENERY. Issues from 1877 have G. H. ROTHROCK'S/ARIZONA SCENERY printed on the front in Gothic letters. Issues from 1876 are on green mounts, while those from 1877 are on orange/lavender mounts. Rothrock used orange/lavender and orange/pink mounts until about 1885, when he switched to cheap gray mounts. The subject matter of Rothrock's stereographs is enormous, especially from 1876 to 1878. Rothrock reprinted some of his earlier numbers. For example, number 60—"Arizona Shrubbery", a still life of Arizona's cacti species was taken in 1877 and reprinted about 1880. I estimate that between 1876 and
1877 Rothrock probably published more than a hundred numbers. The highest number I have seen after 1885 is 209. George H. Rothrock was a brilliant stereographer who more than anyone helped to promote Arizona Territory during the nineteenth century.

Part III

The Railroad comes to Arizona Territory:
Stereography along the Rails, 1880-1890
by Bruce Hooper

Before the construction of the Southern Pacific and Atlantic & Pacific Railroads in Arizona Territory, much travel was done by stage lines connecting Arizona's towns and forts to towns and cities in California, New Mexico, and Colorado. The only other alternative was by steamer up the Colorado River from Yuma to Pierce Ferry. Stage lines connected Yuma with San Diego, Prescott with Ehrenberg and Fort Mohave to San Bernardino then Los Angeles, Prescott with Tucson and Yuma, Prescott and Tucson with Santa Fe, and Tucson with Guaymas, Sonora, Mexico. In all there were three stage routes to California and two routes to Santa Fe. Before the railroad came, Arizona photographers travelled these stage routes. For example, late in 1873, Flanders & Penelon took the stage from Los Angeles to San Bernardino and then from Fort Mohave to Prescott. Stage transportation slowly lost its significance with railroad construction during the 1880s. By the mid-1890s stage lines ceased being of any importance as a medium of transportation in Arizona Territory.

During 1876, the Southern Pacific slowly made its way from Los Angeles to Yuma. Early in the summer of 1877, the railroad line reached Yuma. In June, construction began on the first Colorado River Bridge and on Saturday, September 29, it was completed. The town of Yuma celebrated the next day. The first locomotive on the first track laid in Arizona was the construction train, Engine No. 31. From the reproductions of photographs that I have seen, two photographers witnessed this event: the first, E. Conklin, a stereographer for the Continent Stereoscopic Company, and Charles R. Savage of Salt Lake City. Savage's stereographs are on cabinet size mounts with manuscript captions or printed captions as part of his "California Series." The Southern Pacific reached Tucson on March 20, 1880 and was completed later that year. That same year, the Atlantic & Pacific was begun.

Construction of the Atlantic & Pacific was begun west of Albuquerque in the Summer of 1880. In 1882, the Canyon Diablo and Canyon Padre bridges were completed in July, two bridges at Johnson's Canyon were constructed during the Fall, and a mill in Flagstaff was built by Edward Ayer to provide railroad ties to the Atlantic & Pacific. The railroad reached Flagstaff on August 1, 1882, Williams on September 1, Seligman on December 6, Kingman on March 27, 1883, and Needles, California on August 8, 1883. The Atlantic & Pacific was officially opened on October 21, 1883. At the end of 1883, two major railroad lines traversed Arizona Territory. The first stereographer to travel up one of these lines was Carleton E. Watkins, who went on the Southern Pacific from Los Angeles to Tombstone from April to May 1880.

Early in April of 1880, Watkins began his trip up the Southern Pacific. On April 15th, he arrived in Tucson and

Ben Wittick, stereo negative, Flagstaff, July 1883. Railroad crew moving bridge timber on handcar (Courtesy Museum of New Mexico).
took several large views from Sentinel Peak of the town, several street scenes, and seven views of the San Xavier del Bac. He stayed in Tucson for almost a week. On April 27, he reached Tombstone, which was his intended destination. At Tombstone, Watkins took some more street scenes and made several large overviews from a nearby hill. Then he began photographing mining facilities in the San Pedro Valley and Millville. This was followed by a trip to the pre-Columbian ruins near Casa Grande, where he took some of his finest views. Watkins arrived in Yuma in the middle of May, where he suffered from the heat. On May 18, he reached Southern California where he took street scenes of Los Angeles, San Bernardino, San Diego, Santa Barbara and Santa Monica.


These stereographs of Arizona Territory are all part of WATKINS' NEW SERIES. Numbers are 4837 to 4850 and 4852 to 4922. Stereographs are of cacti, Casa Grande, Fort Yuma, City of Yuma, Tucson, San Xavier, Contention, Charleston, Millville, and Tombstone. Prints are square and are on orange/lavender standard size mounts. Another stereographer who visited Tucson and Tombstone about 1880 was Charles O. Farciet. I know nothing about this

Watkins, 1880, View up the track from Depot, Yuma (Photos courtesy of Arizona Historical Society, Tucson).
stereographer nor do I know how many stereographs he took. The major stereographer in Tombstone during the 1880s was Camillus S. Fly.

The Atlantic & Pacific had two fine stereographers, J.C. Burge and George Benjamin Wittick. Burge first appears in Phoenix in 1881. He probably came from Denver. I do not know how many stereographs Burge took of Phoenix, but I do know that he took some of Hole-in-the-Rock or Natural Tunnel near Phoenix. Burge produced stereographs, tintypes, and lantern slides. He also visited Prescott in 1881 from June to October, pitching his tent south of the Miner Office on Montezuma Street. Burge came to Prescott again from June to August 1882. He stereographed Prescott, the Dosoris Mine, the Big Bug mining area, and Montezuma’s Castle. In 1883, he moved his gallery to Globe and stereographed the Indians at San Carlos. Late in 1883 or early 1884, Burge travelled up the Atlantic & Pacific and to the Grand Canyon. It was during this time that the official photographer of the Atlantic &

Camillus S. Fly, Tombstone, View of unidentified mining camp, c. 1880, purple/gold mount (Photos courtesy Arizona Historical Society, Tucson).
Pacific. George Benjamin Wittick of Albuquerque, N.M., travelled up the railroad line.

In July 1883, Wittick visited and stereographed the Grand Canyon. It was on this tour that he took some of the earliest stereographs and cabinet cards of Old Town Flagstaff (Antelope Springs). I have never seen any of the actual stereographs taken on this trip but I do know that a glass negative cabinet-sized stereo half exists in the Museum of New Mexico. The stereo half shows two railroad lines with some men on a flat car riding on one of these lines. In the distance is Old Town. The very first structure has a long sign jutting out that says “Board & Lodging.” Wittick stereographs of towns taken along the Atlantic & Pacific from 1882 to 1884 are extremely rare. Wittick stereographed Indians, cliff dwellings, towns, and forts in Arizona Territory and operated galleries in Fort Wingate, Gallup and Santa Fe, New Mexico until he died of a snake bite in 1903.

On June 7, 1884, Hildreth & Burge opened their gallery in New Town, Flagstaff. Hildreth was an itinerant photographer from Utah. The gallery adjoined the Arizona Champion’s new quarters, opposite the Atlantic & Pacific R.R. Depot. Their advertisement appearing in the Arizona Champion (June 14, 1884, p. 3, col 3) stated that they used the instantaneous dry-plate process, took baby pictures, and had for sale stereographs and large views of Arizona scenery and Indians. On June 21st, they photographed P.B. Brannen’s general store, constructed of stone (the first building in New Town) and on July 5, 1884, they completed a series of views for Mr. Hamilton’s “Resources of Arizona.” The series includes photographs of cliff dwellings, Oak Creek Canyon, and the San Francisco Mountains. On July 26, 1884, they completed another series of photographs that consisted of the employees and locomotives of the Atlantic & Pacific Flagstaff Division. They also took some more photographs of cliff dwellings. At the end of July, Hildreth & Burge photographed about ninety conventioneers standing on the Canyon Diablo bridge. They had come from Holbrook, where the Independent County Convention of Apache county was held. On August 16, they ac-
Burge, c. 1881-1885, Officer’s Quarters (close-up), Fort Whipple
(Photos courtesy Arizona Historical Society, Tucson).

quired a large landscape camera and took another photograph of Canyon Diablo. Shortly thereafter, they travelled up the Atlantic & Pacific to Needles in order to take scenic views with their new camera. In September, they photographed the Grand Canyon and in February, 1885, the partnership dissolved.

During March 1885, Burge was in Kingman taking portrait and landscape views. The following two months, he travelled up the Atlantic & Pacific again. Late in May, Burge and the editor of the Arizona Champion J.W. Spafford, visited the Grand Canyon and the Supai Indian Nation. Burge took forty views. From June until early August, he travelled all over Arizona Territory. In August, Burge formed a temporary partnership with George Benjamin Wittick. They travelled to the Grand Canyon and attended the annual Moqui Snake Dance. On September 5, an article written by Burge on their trip appeared in the Arizona Champion entitled “Dance of the Moqui.” On this same day, they opened a temporary gallery adjoining the Arizona Champion and had for sale 3,000 views of Arizona and New Mexico. Late in October, Burge visited Holbrook and in November, he visited Prescott again. In December, Burge left Flagstaff and established a gallery in Holbrook.

Burge remained in Holbrook for a brief period, then moved on to Kingston, New Mexico. His gallery in Kingston lasted from 1885-1891. From 1888-1889, W.A. Gilmore operated a branch gallery for Burge in Deming, N.M. Burge was also active in Hermosa, N.M. (1890), Las Cruces, N.M. (1891), and El Paso, Texas (1895-1896). He died on January 1, 1897.

Burge's stereographs vary in size from three and one half by seven to four by seven inch mounts. Mount colors are orange/pink or yellow/light green. Captions are in manuscript on the front or back of mounts. The photographer's address or the photographer's name is printed on the back of the mount. Print is in plain and cur- sive letters and photographs are square. Negatives are not numbered. Hildreth & Burge stereographs have “Hildreth & Burge photos” marked in the negative. There is one series “Views of Arizona Scenery.” Burge’s stereographs from Globe are imprinted on the back VIEWS OF/ARIZONA SCENERY/-AND THE/-Apache Indians in their Native Wilds./Photographed by J.C. BURGE,/Globe City, Arizona. Burge’s views from Flagstaff are imprinted on the back VIEWS OF/ARIZONA SCENERY.

Other stereographers active in Arizona Territory during the 1880s were Charles W. Carter of Salt Lake City, who visited the Moqui Buttes, Erwin Baer and Mitchell & Baer of Prescott, and Buehman & Hartwell in Tucson. Baer during the 1880s photographed many of the mines and railroads in the vicinity of Prescott gaining a reputation as a good railroad photographer. From 1889 to 1890, Franklin A. Nims of Colorado Springs on the Brown-Stanton Railroad Survey photographed and possibly stereographed the Grand Canyon before having an accident in 1890. Baer also photographed the Grand Canyon in 1889. The popularity of local Arizona Territory stereographs started to wane at the end of the eighties.

VIEWS OF
Arizona Scenery
-AND THE-
Apache Indians in their Native Wilds.
Photographed by J. C. BURGE,
Globe City, Arizona.
MITCHELL & BAER, Prescott, c. 1880, Castle Rock, Oak Creek Canyon, buff mount (Author's collection, reproduced courtesy Special Collections, N.A.U.).

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*Weekly Arizona Miner* (Prescott), June 3, June 14, June 24, July 1, July 15, August 5, August 19, October 28, 1881, June 30, July 14, August 25, 1882.

**Checklist of D.P. Flanders Stereographs**

D.P. Flanders / *PHOTOGRAPHIC ALBUM/OE/TRIP THROUGH ARIZONA* (1869, 1873-1874) — Yellow and Orange/Pink Mounts.
17. Prescott in Summer.
19. Gen'l Crook's Band.
26. Ruins at Montezuma Wells.
52. Reservoir north of Fort Whipple, Prescott, Az.
62. Grants Station, Gen'l view, James Grant's Stage Station, Wickenberg, Arizona, 1869.
71. Church of San Xavier's, San Xavier Del Bac.
[?] Five San Carlos Apache Indians and [name illegible]—Camp at night on a trail.
D.P. Flanders, Photographer. / [or]/ Artist. /SCENES IN ARIZONA. — (1873-1874)—Gold Mounts.
68. Papajo School, San Xavier.
72. Old Camp Bowie (Apache Pass.)
90. Casadora and wives, Chief at San Carlos.
Checklist of George H. Rothrock Stereographs

G.H. ROTHROCK'S/ARIZONA SCENERY. [block letters]—1876-1877—green/cream or yellow and orange/lavender mounts.
23. Fort Yuma.
27. Casa Grande.
51. Apache Indian "Cudineyo."

G.H. ROTHROCK'S/ARIZONA SCENERY.—[gothic lettering]—1877-1878—orange/lavender mounts.
42. San Xavier.
60. Arizona Shrubbery.
77. Beaver Creek and Cave Dwellings.
79. Aztec Ruins at Montezuma Well.
81. Montezuma Well looking West.

G.H. ROTHROCK'S/ARIZONA SCENERY. [ornately designed back with space in middle for caption]—1878—orange/pink mounts.

First Premium awarded by the ARIZONA INDUSTRIAL EXPOSITION, 1884. /George H. Rothrock's/Arizona Scenery. Phoenix, Arizona.—[printed on back of mount]—c. 1885-1889—orange/lavender, gray, and buff mounts.

Arizona Scenery. /PHOTOGRAPHED BY Rothrock & Barnett, Phoenix, Arizona.—[printed on back of mount]—c. 1890—orange/lavender mounts.

Checklist of J.C. Burge Stereographs

VIEWS OF ARIZONA SCENERY. /PHOTOGRAPHED BY J.C. Burge.—[Burge's signature in cursive lettering]—1881-1885—orange/lavender mounts.
Street View Phoenix.
Big Bug Mining Area. The Cliff Dwellers.
Johnsons Canon, A.P.R. Ayers Saw Mills, Flagstaff, Arizona. (Hildreth & Burge Photos in negative) [children posed among rocks]
Canon Diablo. The great iron Bridge. A.P.R. 222 feet high. Cost $220,000.
Officers Quarters—from Parade ground—Whipple Barrack. Arizona. 

Checklist of W.H. Williscraft Stereographs

View in Junction City, Kansas.
View of Junction City, Kansas.

Checklist of D.F. Mitchell Stereographs

D.F. MITCHELL./PRESCOTT, A.T.—[Large letters on front of mount]—1870s—orange/lavender mounts.
Bird's Eye View of Prescott.
It is interesting to notice in the folios the increasing appearance of stereo views made with cameras of recent manufacture. The Realist, TDC, Revere, and other similar cameras which still produce most of the folio entries have been 'out-of-print' for many years now and the surviving 'veterans' are showing their age. Since the manufacturers seem uninterested in meeting the needs of stereo photography, alternatives must be found within the confines of available equipment. Two paths are currently receiving attention, judging by folio entries. While standard 35mm cameras have long been used with slidebar techniques, the wedding of two matched 35mm cameras into a viable stereo outfit is receiving a lot of attention in spite of drawbacks resulting from shutter synchronization problems and hyperstereo resulting from excessive separation between the lenses. The second path involves the use of the Nimslo camera either as-is or converted to a Burdlo (see STEREO WORLD, May/June 1985, page 30). It would seem, judging by the folio entries, that the Burdlo is about as handy a candid stereo camera as we have seen, especially for fairly close people-pictures. A number of Stereoscopic Society members are sending or have sent Nimslos to England for conversion and the cost seems quite reasonable, especially since the Nimslo dropped to near giveaway prices.

One of our longtime Stereoscopic Society members is Glen Peterson of Bronxville, N.Y., who is a professional in color printing. Glen has always been an innovator looking to the future. He has been experimenting with stereo color slides made with two Nikon FG-20 cameras placed as close as possible by overlapping.

This positioning puts the interocular at 3½ inches which is about what the old Keystone used to be. Though this exceeds what is considered average it still gives results which have long been considered acceptable by most viewers. Parallel mounting of the cameras results in 5¼ inches separation and the associated apparent miniturization of nearby objects. The price of the overlapping is that one camera lens is 35mm in front of the other. Glen tested such views on the Alpha transparency circuit and no one detected any difference resulting from the slightly different image sizes, either in close-up subjects or 'normal' scenes. Even after the secret was revealed, I could not detect it in the excellent views which Glen submitted. It would appear that overlapping the cameras is not an issue for rigging stereo outfits from matched cameras. Glen feels that any geometry which results in enjoyable viewing is acceptable and I would not argue with that. Much of Glen Peterson's experience and philosophy is contained in a folio notebook entry he wrote a while back. The notebook is the main device for our members to discuss current thoughts and issues at length. Every folio contains such a notebook. Quoting from the Alpha Notebook:

'My history as a member goes back well before the 35mm Realist entries. Most entries were old 3" square paper prints, many of which were toned to get other than a black & white image. This meant that more time in producing an entry was spent in darkroom activity than in camera work. No commercial B & W services were utilized. The entries of 35mm included with the large standard views presented a problem. At first there was a continual controversy of even having them mixed in a folio. Then it proved a problem to judge if 35mm color could be allowed to compete with the large B & W prints. So much for the S.S. history.

'Now that the efforts to produce a good stereo view are no longer controlled by proper processing of the negative and the print it leaves a greater chance of control in taking the picture. It is in this area where the most improvement of the member's skill has now seen fulfillment. It is the only area where we have a chance to really excel. Exposure and processing are generally accepted to be 'locked in' or beyond our control. Therefore the only expertise lies in developing (continued on page 40)

The base plate (outline) is of 3/16" aluminum. Drill holes (¼") for each camera's tripod socket and secure them with short ¼" bolts (thumb-screw type). Only the hole in the base for the tripod itself need be threaded. For precise alignment, guides for the camera bodies can be bolted to the plate.

Skeptics who wish to test this arrangement (especially on subjects closer than 6 feet) can try using two shots in sequence with a single camera to avoid any possible influence of differing lenses or cameras. First trace the two positions on a board, then shoot a complex but non-moving subject with the camera first in one position, then in the other. Then sandwich the slides or negs in a projector or enlarger and look for image size differences at high magnification.
Return with us now to those thrilling days of yesteryear. From out of the past come the thundering hoofbeats of the photographer's van... a hearty "Hold it, and smile!" The Lone Stereographer rides again!

Sorry, just couldn't resist, because 3 of our 4 unknowns take us west this time. Received from George Allen, the first view is a yellow card by William Jackson of Omaha, Nebraska, "Scenery of the Union Pacific Railroad." The right photo has been mounted so that it covers up the title. A few shacks lie in the foreground, and a steep hill in the background. The left photo has a number 18 in the lower left corner, and the right photo has a 198 in the lower right corner.

George's second view, copyright 1876 by Melander & Bro. of Chicago, is very similar to one that we ran in the JAN/FEB '83 issue that was identified as Carlin, Nevada. Can anyone confirm this as the location?

The third of George's views is of a town where the nearest
store is labelled "Silverman & Einstein Pioneer Store Dealers in General Merchandise". The center store is "C.W.D. Long & Co. Clothing".

Zipping quickly back east, we close with a Moulton view, "New Series. Views of Salem, Mass. Artistic Size. 1873". It features a bottle with several large pins in it. Owner Ralph Gosse speculates that it may have had something to do with sticking pins in people to see if they were witches during the Salem witch hysteria. Has anyone seen the Witchcraft Museum in Salem and come across this?

Regarding the view we ran at the top of page 26 in the MAR/APR issue of this year, Richard Orr pointed out that it really isn’t a stereo pair at all! Actually 2 photos taken a few moments apart, the man and woman at center have obviously changed position, while the angle of the lens remains constant.

George Allen recognized the western view from the same issue (top of page 27) as being Albert Pollock’s photo of Sherman St. in Deadwood, South Dakota.

Tex Treadwell commented on the woman photographer shown at the bottom of page 27, same issue. He believes that the object projecting from under her skirt at the right is the foot of a cast iron steady-rest. Since those things weighed about 40 pounds, the view may not have been taken too far afield. He doubts that this could be a Bennett view, because the rocks don’t look like the cross-bedded sandstone that litters the Bennett area.

Send information on these or past unknowns to Neal Bullington, 137 Carman St., Patchogue, N.Y., 11772. When sending views for identification, be sure to enclose return postage. Those who fail to do so will have to ransom their views to get them back.
3-D film technology is breaking new ground in two innovative big-screen presentations at Expo 86 in Vancouver, Canada, this summer. In a world's fair praised for its many entertainment highs and few lows, both films have established themselves as must-see attractions for all Expo visitors. Best of all, response from film critics has been equally enthusiastic. That's not too surprising since both films ('Ontari-Oh!' and 'Transitions') were created by award-winning Canadian directors who have used the breakthrough 3-D technology tastefully and imaginatively.

The fair closes October 13. Stereo enthusiasts should make every effort to attend, and check out the 3-D of the future.

ONTARIO'S MULTI-IMA

An astonishing 450 images are packed into a minute 70mm 3-D film at the Ontario Pavilion. (One minute you're on screen 3-D, the next second three or four small images appear as floating matte optical effects at different distances.) One minute you're on screen 3-D, the next second three or four small images appear as floating matte optical effects at different distances.

The still officially untitled film, which had working titles—'Ontari-Oh!' and 'Panels in Space'—was designed and directed by David Mackay. He became interested in multi-image filmmaking. His 70mm 'A Pik' presented in the Ontario Pavilion at Expo 6 went on to win an Academy Award and has become a cherished film classic in Canada.

Mackay's new film contains 10 minutes of screen 3-D images interspersed with about 1 multi-image. All in all, six different avenues are pursued in the film including full-screen 3-D. The other avenues used in the film included: 1) multi-images on stills or 35mm 2) multi-images of two 3-D scenes from old stereoscopic single 3-D stereo card with live action pant 3) multi-images on black background and 4) multi-image and 3-D.

Mackay's first multi-image tests didn't always work. They were shot using an Arri BL camera. After optical processing, the results he had hoped for. They were shot using an Arri BL camera. After optical processing, the results were shot using an Arri BL camera. After optical processing, the results were shot using an Arri BL camera. After optical processing, the results were shot using an Arri BL camera. After optical processing, the results were shot using an Arri BL camera. After optical processing, the results were shot using an Arri BL camera. After optical processing, the results were...
For the opening and closing sequences of “Ontari-Oh!” full-screen 70mm 3-D fills the background while panel images float at the screen plane.

Even with this positive experiment, Mackay, as a designer and art director first, found it difficult to reconcile putting one picture over another picture. Still, once he saw the results, he was so enthusiastic that he started to rethink parts of the film. Since the documentary is a whirlwind tour of the province of Ontario, its history and its inhabitants, Mackay decided to fill the big screen with non 3-D old photographs, then for contrast, add contemporary shots relative to the historical image. When placed over the full-screen image, three or four panels, (live action or 35mm blow-ups) would appear to float out at different distances. If four or five panels—or more—were used, Mackay brought them all out at the same distance.

Old stereo cards make it to the big screen
Mackay admits to being a stereo enthusiast “since day one.” His family’s old parlor stereoscope was, of course, the first source of his 3-D interest. (Some stereoscopes are still evident around his office and home.) He owns a well-used Realist camera and he has great admiration for the Susan Pinsky-David Starkman “Reel 3-D News” chronicles. Therefore, it was inevitable that old stereo photographs would find their way into his new Ontario film.

“Some of these old views weren’t shot that well and good 3-D wasn’t always there,” says Mackay. “We made them better.” After experimenting with these stereo cards, Mackay and his colleagues discovered that they could put two 3-D scenes on the screen by blowing them up to 70mm. The alignment and matte work was extremely critical and Mackay was successful with only a few. For the experiment, a special double overhead projector with a grid system for alignment was built. He tried blowing up both sides of a single stereo view to full 70mm but other problems were created. “Stereo cards do not ‘come out’, they only ‘go back’, so we superimposed a number of 35mm live action panels at the screen,” says Mackay. “It would have worked but
north-south alignment was off a fraction and had a disturbing effect. Horizons have to be perfectly aligned whereas verticals can stand some imperfection. We did use a shortened shot by reducing the length at the head of the shot."

**Multi-image, Flat “Resting Points”**

Interspersed throughout the film are approximately five minutes of multi-images against a black background. No attempt was made for 3-D. The panels were shot in 35 mm and matted onto 70mm with both left and right eye films superimposed. According to Mackay, these sequences serve a useful purpose. “I just wanted to get everything ‘back’ at the screen again. Once you get used to seeing images ‘out’, they don’t appear to be ‘out’ anymore. These resting points also give the audience an opportunity to compare these non 3-D images with the 3-D images that precede and follow.” It’s very effective. Mackay believes that in such a fast paced film he didn’t want to tax the audience’s eyes to the limit. He admits that he could have been far more daring and adventurous (like having floating mattes travel across the 70mm screen) but a tight production schedule and limited budget prevented further experimental techniques.

**Full-screen 70mm 3-D**

The single, most memorable sequence in the 10-minute, full-screen series of 3-D shots is the 50-second flying Canadian geese scene where wings appear to be literally brushing up against your nose. The popularity of the sequence amuses Mackay since he thinks many people will forget the overall artistic effect of the other scenes. Oddly enough, it was the easiest sequence to shoot. No special tricks here. The geese were raised from eggs, fed and trained. Before they could fly they swam alongside the boat, which later contained the camera gear. “Once the geese discovered their wings, out came the cameras,” says Mackay. “With convergence set at 35 feet, interocular distance at a normal 2½ inches and the first goose four feet from the camera, the audience in the Ontario Pavilion probably experiences the best, most natural 3-D shot ever taken.”

For some backgrounds, Mackay used black & white stills of historical significance to the live action panels that float out in front of the background. Here, a grape harvest in the St. Catharines area is seen on three panels in front of a vintage photo of some Elmira Mennonites haying.
Mackay has created a new film concept, perhaps the only one at Expo 86. "Creating these montages wasn't as easy as everyone seems to think," says Mackay. "You just don't string the images up like beads on a string. There had to be psychological impact from beginning to end. Image dominance, color, shape and direction are only a few of the elements that had to be carefully designed in creating the montages for this film."

As for technical expertise, Mackay has high praise for James F. Liles ASC, former head of the MGM optical department. Liles masterminded the tricky matte and panel work that brings the multi-image sequences off the screen and into the theater. "He did six months of work in only six weeks," says Mackay. He also acknowledges the help of Barry O. Gordon CSC of United Artists who acted as stereographer and consultant at various stages of Mackay's film.

Full-screen 3-D was shot using twin Mitchell 70mm cameras designed by Dr. Richard Vetter. Cinematographer Ludek Bogner looked through the left camera, while on the right one there was a video-assist camera to record the filming and allow checks for framing and flares, etc. The weight of the camera rig (150 lbs.) created physical problems in filming some scenes. Mackay believes you can't always get enough effective 3-D using a tripod so a tulip-type movie crane was often used.

Mackay has won over 100 awards as a filmmaker and as a designer. His background as art director in the 1950s at CBC-TV (Canadian Broadcasting Company) and as a founder of Canada's TDF Film Productions in the 1960s has kept him at the leading edge of innovation. He has already made an indelible mark in the production of big screen films with his three successful Imax films, "Catch the Sun", "Ontario Summertide" and "Silent Sky". He had hoped to shoot his new Ontario Pavilion film in Imax because "the size of the image goes beyond your peripheral vision and the disturbing 'window effect' almost disappears." He candidly admits that the budget ($2.3 million Canadian) prohibited the Imax format.

**Is there life after Expo for 'Ontari-Oh'?**

Most likely. In this time of budgetary restraint, the Ontario government will probably ensure future showcasing at either Toronto's Ontario Science Centre or at Sudbury's Science North.

There's no doubt that Mackay's multi-image film thrusts 3-D technology to exciting new plateaus. Although he is happy with results, he admits "We can still do better—and we will! A certain caution at the beginning of film production led to some daring experiments by the time we created the final optical effects." Let's hope we get a chance to see these results—soon! At Brisbane's world's fair in 1988?

**3-D IMAX—SIX STORY HIGH IMAGES!**

The 3-D Imax images presented on the huge 71 foot by 53 foot six-story high screen in the Canadian National (CN) Theater at the Canadian Pavilion are nothing short of awesome. (The 3-D images on the 70mm screen over at the Ontario Pavilion are 50 feet by 22 feet—a mere three stories high. Did I say mere?)

The new Imax film, "Transitions", marks another breakthrough in modern film technology and the culmination of over 40 years of research and development in experimental 3-D work by its producer, the National Film Board of Canada (NFB). The film was produced for Canadian National and the Canada Harbor Place Corporation.

The original Imax format, which received a special Academy Award for technical excellence earlier this year, is perfectly suited for 3-D. The large 15 perforations per frame format measures in at 5.2 square inches per frame and is 10 times the size of a conventional 35mm frame (four times...)

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**Hanging from the back of a pick-up, the 3-D Imax rig is seen here enclosed in the specially built wind housing designed to prevent side movements caused by strong crosswinds.**
perforations per frame with a 0.5 square inch frame area) and three times the size of a 70mm frame (five perforations per frame with a 1.66 square inch frame area).

According to Colin Low, film board veteran and "Transitions" co-director, "Imax produces a large, bright image of great fidelity and its image is extremely steady because of its unusual projection system. The film moves horizontally and the motion provides vertical stability without any of the vertical misalignment which was the principal cause of eye strain with other 3-D formats."

Cinematographer Ernest McNabb, who is also the director of stereoscopy and the person most responsible for working out the technology involved in putting Low's vision onto the screen, agrees with his longtime collaborator. "As you go up in film gauge, the audience's enjoyment level is enhanced because the image is more realistic, more believable. Excitement equals involvement in these dimensions. In 3-D you aim for excitement points, things that approach you and draw you into the film as a result. 3-D can involve the audience emotionally in a way that simply isn't possible on a flat screen."

"Transitions" was shot over a 12 month period using a sophisticated 3-D rig whose design was supervised by McNabb and built in Hamilton, Ontario by Istec Ltd. (inventors of the highly acclaimed Wescam). The assembly consisted of two Imax 65mm cameras, one positioned vertically and the other horizontally, installed on either side of a semi-transparent mirror, with a sunshade surrounding it. To ensure the absolute stability of the system, Istec's precision gyroscopic stabilizer was added to the frame of the structure—and the rig was ready to shoot virtually anywhere even though it weighed a hefty 350 pounds. In order for McNabb to view what the camera saw, a miniature video camera was positioned adjacent to the right lens transmitting its video signal to a monitor on the control console.

Fully assembled, the camera rig is worth over one-half million dollars (Canadian). It is the only one of its kind in the world. As the camera was hauled across the country during filming, the crew was always aware that if it were dropped or damaged there were no immediate substitutes. They had to make the film with this camera assembly or not at all.

McNabb recalls that "we were always pushing the camera technology to its limits and then some." During breaks in shooting, the equipment was sent back to Istec where it was upcaled with the addition of more powerful motors, etc. What was being used at the end of the shooting was decidedly different from what they had started out with. "The thing is," says McNabb, "with this kind of equipment, the moment you stop developing, you're behind. We now have the design for the next generation of equipment which will guarantee even greater capacity."

The film is projected with perfect steadiness and with perfect registration using two Imax 70mm projectors, each equipped with 15-KW water-cooled xenon lamps. Both projectors have been installed in the CN theatre as close as possible together to minimize interaxial distance between the lenses. One of the projectors is mounted on lateral tracks to provide access for threading and maintenance.

With "Transitions", the NFB has taken a giant step forward in 3-D technology, due in part to three visionary Canadian filmmakers. Colin Low has been a producer-director with the NFB for more than forty years. He co-directed the highly acclaimed "Labyrinth" for the NFB Pavilion at Montreal's Expo 67, one of that fair's most popular attractions. He served as animation consultant on "Universe: We are Born of Stars", an anaglyphic 3-D Omnimax presentation for Fujitsu at Japan's Expo 85. (See STEREO WORLD, July/August '85, page 28.)

Co-director Tony Ianzelo is a three-time Canadian Film Award winner for short documentaries. He has also won two Academy Award nominations in the short subject category for "Blackwood" (1977) and "High Grass Circus" (1978).

Ernest McNabb, director of photography and stereoscopy, first assisted Low on 3-D experiments back in 1973. Later that year he found himself in the Soviet Union where he, Low and another 3-D pioneer from the NFB, John Spotton, compared 3-D notes with Russian filmmakers. McNabb has served as 3-D consultant on two large-scale exhibition movies, Marineland's "Sea Dreams" and Disney's "Magic Journeys" at Epcot Center. In 1983 he performed similar services on Columbia Pictures' 3-D feature film, "Space Hunter".

Colin Low conceived the original storyboard that "Transitions" is based on. The film is a 21½ minute journey (about 88 shots) into the past, present and future modes of Canadian transportation and communication and their interrelationships. The film's visual climax uses new state-of-the-art cinema techniques in a series of computer generated 3-D images designed by the NFB's new Computer Animation Center. Throughout the film, Low has filled the screen with startling 3-D images while carefully balancing the number of objects that "come out" and "go in".

Low believes Imax 3-D could logically become the savior of a movie industry still fighting off TV and VCR populari-
"Ultimately there will be a very interesting, multi-dimensional cinema. Science-fiction authors have written about it for generations and it's not too far away." Some of the technology Low is talking about can be seen now—at the CN Theater in Vancouver (and hopefully at other Imax theaters around the world after Canada's Expo 86).

Acknowledgements
At the National Film Board of Canada: John Spotton, Executive Producer of Ontario Studios.
At Imax Systems Corporation: William Shaw, P. Eng., Vice President Engineering and Operations; Ian Maxwell, Projects Manager.
Also: Brian Holmes CSC, Versafilm Ltd.; Kevin Tierney at David Novek et associates inc.; The Toronto Star and Larry Kent, Communications Co-ordinator, Ontario Pavilion.

FROM RUSSIA WITH DEPTH—MORE 3-D AT THE FAIR!

There's a delightful stereo surprise waiting for visitors to the Soviet Pavilion—a 30-minute film using a standard Russian 3-D system. The one-strip 70mm film contains side-by-side (or double) images which are projected onto a small (3:4 ratio) screen that is in proportion to the 150 seat theater.

The storyline—about animals in a game farm—provides no distraction to the excellent 3-D, according to Brian Holmes CSC, technical co-ordinator for "Wilderness" at Science North in Sudbury, Ontario. "The 3-D is simple, effective, bright and accurately lined up. The titles and commentary are in Russian but that doesn't prevent overall 3-D enjoyment," says Holmes.

Russian 3-D is seldom—if ever—seen in North America so make a point to check out this little-known film. Cardboard glasses are used to view the film.

This system is not to be confused with a Russian no-glasses 3-D system first presented in 1940 where only a small audience could view the film at one given time—and they had to keep their heads in a certain position to have the 3-D system work.

IMAX
70mm, 15 perforations/frame
1.91" x 2.74", Area = 5.23 sq. in.
48.51 mm x 69.60 mm, Area = 3376.30 sq. mm

STANDARD 70mm, 5 perforations/frame
.870" x 1.91", Area = 1.66 sq. in.
22.10 mm x 48.51 mm, Area = 1072.07 sq. mm

STANDARD 35mm, 4 perforations/frame
.825" x .600", Area = .50 sq. in.
20.96 mm x 15.24 mm, Area = 319.43 sq. mm
**THREE IN 3-D IN CANADA**

**AT-A-GLANCE COMPARISON**

<table>
<thead>
<tr>
<th>FILM</th>
<th>“ONTARI-OH!” Ontario Pavilion Expo 86</th>
<th>“TRANSITIONS” CN Theater, Canada Pavilion Expo 86</th>
<th>“WILDERNESS” Science North Sudbury, Ont.</th>
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<tbody>
<tr>
<td>DIRECTION</td>
<td>David Mackay</td>
<td>Colin Low and Tony Ianzelo CSC</td>
<td>Christopher Chapman**</td>
</tr>
<tr>
<td>PHOTOGRAPHY</td>
<td>Ludek Bogner</td>
<td>Ernest McNabb</td>
<td>Christopher Chapman</td>
</tr>
<tr>
<td>STEREOGRAHY</td>
<td>Barry O. Gordon CSC</td>
<td>Ernest McNabb</td>
<td>Brian Holmes CSC (Technical Coordinator), Francis Chapman</td>
</tr>
<tr>
<td>LENGTH</td>
<td>20:07 min.</td>
<td>21:30 min.</td>
<td>15 min.</td>
</tr>
<tr>
<td>COST (Cdn.)</td>
<td>$2.3 million</td>
<td>$4.2 million</td>
<td>$700,000</td>
</tr>
<tr>
<td>CAMERAS</td>
<td>Twin Mitchell 70mm cameras using Stereospace system</td>
<td>Imax 65mm cameras, one positioned vertically, the other horizontally</td>
<td>Twin Panavision 65mm cameras mounted on base plate and half-silvered mirror</td>
</tr>
<tr>
<td>AUDITORIUM CAPACITY</td>
<td>750</td>
<td>500</td>
<td>300</td>
</tr>
<tr>
<td>SCREEN IMAGE</td>
<td>50’ x 22’ high</td>
<td>71’ x 53’ high</td>
<td>43¼’ x 20’ high</td>
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<tr>
<td>PROJECTION THROW</td>
<td>90 feet</td>
<td>65 feet</td>
<td>62 feet</td>
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<tr>
<td>SCREEN BRIGHTNESS (FOOT LAMBERTS*)</td>
<td>Abt. 12</td>
<td>Abt. 10</td>
<td>Abt. 20</td>
</tr>
</tbody>
</table>

*Industry standard* is abt. 16. Most 35mm 3-D films run at 10 or less.

**See Stereo World, Jan./Feb. 1985. Christopher Chapman is represented at Expo 86 with a non 3-D film for the U.S. Information Agency in the U.S. Pavilion.**

3-D isn’t 3-D without glasses

The 3-D presentations at the CN Theater and Ontario Pavilion are being viewed using identical glasses, except for the color of the frames. They are similar to the glasses used at Epcot Center which are ideal for big-screen viewing. The flexible plastic arms adjust perfectly to all head shapes and sizes and they fit easily and comfortably over regular prescription glasses. “Apart from the enlarged size,” says Colin Low (co-director of “Transitions”), “these new glasses feature a high quality polarizer which allows for complete color range without any distortion. As well, their unique design offers a significant degree of cancellation, which has the net effect of removing information or light from entering the wrong eye, or what is most commonly referred to as ghosting.”
Review

A KEY TO 3-D PUBLISHING?

OLD KEY WEST IN 3-D, by Joan and Wright Langley. The Langley Press, 1986; 62 pp. with 52 stereo views and plastic viewer, softbound, 9 x 6"; $14.95 plus $1.50 shipping from The Langley Press, 821 Georgia St., Key West, FL 33040.

Even if your interest in the Florida Keys is limited to watching "Key Largo" every few years on the late show you may find Old Key West in 3-D a very worthwhile purchase. And if you’ve ever considered doing a book of historical (or current) views of your own area, this work could be a helpful inspiration.

Joan and Wright Langley have produced a simple and attractive little album of stereographs documenting much of the colorful past and many of the historic buildings of the island city of Key West. On each page is a full stereo view (reduced to a 2.5" or less point-separation size). Under each view is an informative and well researched caption that seems to anticipate many of the questions readers could ask about the view. (For buildings, these generally include "when was it built? by whom? why? is it still there? what happened to it?" etc.) The stereoscopic coverage of Key West got a big boost during the Spanish-American War, when various publishers sent stereographers for views of ships, harbor and military installations. A number of views in the book reflect this wide coverage.

Joan and Wright Langley have been involved with both historical research and small book publishing for some time now in the Key West area. They are co-authors of several books on the Keys and their history, and they publish their own and other work through The Langley Press. Wright Langley is also director of the Historic Florida Keys Preservation Board. The Langley’s background, combined with the stereo precedent set by Clement Slade’s 1982 book Historic Florida, has helped make Old Key West in 3-D a possible trend setter for 3-D publications.

Its concentration on a local area (rather than a specific photographer or subject) opens up the local market for sales, as well as possible tourist sales. There are of course other places around the country with this potential for combining stereo research with local history (and even nostalgia) appeal. The duotone reproduction of the views in Old Key West in 3-D makes them look very classy and authentic, especially when free viewed (which their reduced size invites). When viewed with the short focal length viewer, even the 200 line screen appears a bit coarse and the duotone printing adds dots at the opposite angle for an effect much like viewing a color reproduction under magnification. Others who plan similar books may want to try larger reproductions (close to 100%) and the longer focal length (10½") plastic viewers. The viewer would magnify the screen less, and the larger image would be made up of more half-tone dots for greater resolution from the start.

—John Dennis

JUST OUT:
A NEW BOOK OF CLASSIC CAMERAS

The “golden age” of the miniature camera spanned some 45 years, from the advent of the Leica in the mid 1920s to the beginnings of the era of Japanese dominance and the introduction of plastics and electronics at the end of the 1960s. This was the age of the classic camera, when optical innovation and rugged craftsmanship combined with precision engineering to produce photographic equipment of great quality, appeal and originality. Cameras of the “classic” era are today prized by collectors and users alike.

An exhaustive and practical guide to collecting and using these cameras was published in June of this year. Collecting and Using Classic Cameras by Ivor Matanle contains 320 illustrations on 224 pages and covers European, U.S., and Japanese makes and models and describes advantages and disadvantages of each. Each camera’s reliability, investment value, and potential as the basis for a system is covered, as well as ways to check for faults or evidence of inexpert repairs. Appendices include collectors’ and users’ societies, dealers and specialist publications along with sources of materials and accessories.

Published by Thames and Hudson, 500 Fifth Ave., New York, NY 10110. $35.00 hardcover.

A PARIS 3-D GATHERING THIS FALL

The French Stereo Club has organized that country’s first National Congress of Stereography for November 8-10, 1986. The Congress will be held in Paris/St-Mande at the Institut Geographique National, the theme being the past, present and future of stereo.

1986 was seen as a good time since there is no ISU Congress this year, and, as the Stereo-Club Francais calculates, this is the 150th anniversary of stereoscopy. The preliminary program includes an exchange of ideas on electron microscope stereo, 3-D marketing, stereo video, and 3-D cartoons. Discussions and workshops will cover topics ranging from view mounting to macrostereo to special effects. An exhibit will display materials and techniques for stereo imaging, and lectures with slides will be presented on two evenings.

All foreign delegations are welcome, and more details are available from French Stereo Club President, G. Cardon, 45 rue Jouffroy, 75017 Paris France.
The finished Ice Palace, illuminated internally, was a triumph of the determination of the many volunteers who built it. Few outsiders thought the project would succeed. Weather, design, geology, and hard lessons on how to build with ice all seemed determined to doom it nearly to the end. But the proof is in the splendor seen here: the union workers and other St. Paul volunteers are just as able and persistent as those predecessors who look out at us from photographs of a century ago.

Then and Now

The St. Paul Ice Palace

by Craig Daniels

Instead of timeless monuments, stone and steel buildings, or great rocks, this edition of THEN & NOW is devoted to two structures designed to last a few weeks at most, but constructed exactly 100 years apart for the same public celebration. Our “then” views are by H.H. Bennett from the collection of John Weiler. They show the great Ice Palace built for the first St. Paul, MN Winter Carnival of 1886 and those of the following years. They are part of a large series of views published by Bennett of the Palace and Carnival, with special card borders.

Our “now” views are by Craig Daniels of Red Wing, MN and are good examples of the fine color print views he circulates in the folios of the Stereoscopic Society. They show the construction and finished structure of the 1986 version of the Ice Palace.

As the story goes, an east coast journalist had insulted the livability of St. Paul, and in response the residents organized the first Winter Carnival as a public relations effort in 1886. It was then a city of 120,000 and was known as the country’s third largest rail center. The carnival was to become an annual event involving nearly the entire city in winter sports, festivities, and parades all designed to make the best of the cold but “invigorating” local climate. Ice Palaces seem to have been built only in the first few years, so for the 100th Winter Carnival, it was decided that it was about time for another Palace. Local Unions, contractors, and old-timers contributed their cooperative efforts to prove that the city could at least duplicate the grandeur of the past with a 1986 Ice Palace. Unlike the historic, medieval look of past palaces, the modern one was designed with the tall spires of a Disneyland fantasy in mind. The numerous problems encountered along the way to eventual success are covered in the captions to Craig’s “now” views.
St. Paul: The 1986 Winter Carnival Ice Palace. First there was a single forlorn crew (Keller Construction) and their crane, falling far behind schedule in the deep frost. It was so cold that my shutter slowed to a "clink-clunk" after the first shot. The people in this view were from a TV station and kept doing the same take over and over: "No way will the palace be completed at this rate! Only 20 pilings have—. Later, 4 cranes, 150 workers, a ripper, bull dozers and night lighting overcame.
A warm spell arrived (along with more media from around the world). The south wall of the palace listed by 5 degrees, and the project was threatened AHEAD of schedule by Vulcanus, the god of fire who prevails over King Borealis and his Snow Queen at Carnival’s end. Tank trucks of liquid carbon dioxide arrived in time to cool the foundations.
There was so much insulating snow on the lake that the ice supply for the palace was in doubt until a crew of men and snow blowers cleared it. Ed Chaput, who last cut ice in 1937, transplanted the skills of ice harvesting to a new generation. Old style tools were made from photographs and memory, while this skid-lift was made to get the blocks up over the road from Lake Phalen.
Via skid ramp, blocks of "construction grade" ice are moved to the site of the growing palace.
Ornamental Water, with Palm House in the distance. No. 384 by Valentine Blanchard.

The Royal Botanical Gardens at Kew

by Tom Rogers

One of the pleasures too often missed by the traveller to England, these gardens are among the most beautiful in the world. In the range of 50,000 species and varieties of plants are to be found at what is more popularly referred to as Kew Gardens. Additionally, there is an herbarium, and a botanical library of over 100,000 volumes.

Three hundred acres in size, Kew Gardens represents the botanical knowledge of the last two hundred years. Founded in 1759 by Princess Augusta, mother of King George III, it was to Kew that British scientists and explorers, such as Charles Darwin, brought the rare and exotic specimens that they had collected on their journeys around the world.

Perhaps the most familiar sight at Kew would be the Palm House, built in 1844-48 to the plans of Decimus Burton and Richard Turner. A remarkably large yet delicate building of metal and glass, the Palm House fronts on a beautiful lake referred to variously as the Ornamental Water, or more simply as The Pond. Inside the Palm House it is always warm and humid, necessary conditions for the numerous tropical plants.

That the gardens were as popular in the 19th and early 20th centuries as they are today is evident from the number of stereoscopic views to be found. Numerous photographers made views of the many attractions at Kew Gardens. Such notable firms as Kilburn Brothers, Griffith & Griffith, Keystone View Company, and London Stereoscopic Company made views of the buildings and plants within the gardens. Valentine Blanchard even issued a "mini-series" entitled "Stereographs of Kew Gardens." Additionally, F. York issued several views of the gardens included in his series "Stereoscopic Gems—London and Neighbourhood."

Other photographers, whose work we seldom encounter,
include A. & E. Seeley, from neighboring Richmond, and T.J. Bradfield who photographed in the gardens around 1858. A photographer (or photographers) unknown to me made a rather large number of views of individual species of plants, with the views numbering up to at least #43, judging from the numbers found on the pre-printed labels attached to the reverse of each view. This series is entitled “From Kew Botanical Gardens.” These views are generally found tinted, some very beautifully done.

That so many photographers have been enchanted with Kew Gardens is no great surprise. To this very day one visiting London would do well to follow the advice of Alfred Noyes as he wrote in “The City Where the Sun Sinks Glittering and Low.”

Come down to Kew in Lilac-time,
(It isn’t far from London!) And you shall wander hand in hand
With Love in Summer’s Wonderland,

**NORTH AMERICA’S HISTORIC BUILDINGS**

**St. Michael’s Episcopal Church, South Carolina**

Located at 80 Meeting St. in Charleston and constructed in 1761, this church is one of the great ecclesiastical architectural monuments of the colonial period.

Its brick walls are covered with stucco. The two-story Roman Doric open portico that dominates the front of the structure was the first giant portico built on a Georgian church in this country. A 185-foot spire towers above, while the square base supports 3 diminishing octagons embellished with openings, pilasters, and cornices. The interior is rectangular with a coved ceiling. St. Michael’s is in private ownership and is still an active church.
Newviews

Current information on stereo TODAY: new equipment, developments, magazine and newspaper articles, or 3-D events. This column depends on readers for information. (We don't know everything.) Send information or questions to David Starkman, PO Box 35, Duarte, CA 91010.

REVIEW

ANAGLYPHIC SCIENCE

THE STEREO IMAGE IN SCIENCE AND TECHNOLOGY, by Dieter Lorenz. German Aerospace Research Establishment, 1985; 119pp. with 38 anaglyphs and glasses, softbound, 12" × 8".

For distribution and price information, contact A PHOTOGRAPHERS PLACE, PO Box 274, Prince Street, New York, NY 10012.

In both quality and scope, The Stereo Image in Science and Technology goes far beyond most exhibit catalogs. Its large pages feature side-by-side German and English versions of the text, which covers in some detail the nature of stereo vision and photography as well as introducing each of the 12 sections. These illustrate a variety of scientific uses of 3-D imaging—including cartography, environmental protection, meteorology, archeology, microscopy and drawing.

Also discussed in some detail in the introductory text is something that may seem strange in a book devoted to high-tech 3-D. That something is the Kaiser Panorama, the room size 50 view stereoscope with lenses for 25 people around its circumference that could be found in most major German cities around the turn of the century. The Panoramas functioned much like the newsreel theaters or television of later years. The sets of 50 views were changed every week and included news, travel, and educational subjects. At timed intervals, the ring holding the views advanced one, so each seated customer saw the entire set in 20 to 30 minutes. Groups of students and their teachers were among the most frequent visitors.

Two of these grand (and now very rare) devices are located in museums in Munich and Berlin, where it was decided they would make ideal connecting links between a communication technology of the past and modern applications of stereoscopic images. They are also an ideal solution to the problem of presenting a large number of stereo images to random crowds of people in a museum setting. The exhibit (also titled "The Stereo Image in Science and Technology") was presented in the Kaiser Panorama at the Munich Photo Museum from November '85 to June '86. It will open in Berlin at the Museum of Berlin on August 28, 1986 using the Kaiser Panorama there.

While anaglyphs are no doubt a poor substitute for such a grand machine, those in the exhibit's catalog are among the best ever printed. As in other current European anaglyphs, color and contrast are carefully controlled using pale, pink/orange and a pale, light green. Glasses are red and green. Ghosting is hard to detect even in the most extreme stereo drawing examples. The surface of the page simply disappears the instant you look through the glasses at the surface of the moon or into a pelvic X-ray or up at a vaulted ceiling.

STEREO WORLD contributor Dieter Lorenz organized the exhibit and the book. It was sponsored by the German Aerospace Research Establishment, with which he is affiliated.

SHARP SHOWS SHUTTER SYSTEM

Already available as a consumer item in Japan, Sharp Electronics introduced its 3-D TV system at the Summer Consumer Electronics Show recently in Chicago. Signals from a Video High Density (VHD) disk player are fed into a TV set and into liquid crystal shuttering glasses to provide synchronized stereo viewing. One reporter attending the show was impressed by the 3-D effect but bothered by the flickering image, which indicates that the system may not yet provide enough scans for each eye to equal the 60 per second "field rate" of regular television screens. There is no word as yet about what features would be available on the special video disks.

THE NIMSLO 3-D BOOK

EVERYTHING YOU ALWAYS WANTED TO KNOW ABOUT THE NIMSLO 3-D CAMERA INCLUDING TIPS FOR USES THE MAKERS NEVER INTENDED

Actually, this book by David Starkman and Susan Pinsky is almost completely explained by its extensive title, as printed above. A surprising number of people new to photography but interested in stereo have heard of the Nimslo. But lacking practical information about its wide potential, many have hesitated to buy one even at the present low prices offered by mail-order camera dealers. The book assembles under one cover nearly all the facts and hints concerning the Nimslo and its possible uses that would be of interest to most people new to stereo and/or photography.

It opens with a description of the camera itself and the lenticular Nimslo prints still available from the company. (Several pages of instructions and diagrams from the original Nimslo manual are reprinted, along with a complete print processing form.) Tips left out of the original manual are covered too — like the 30% cropping from the image edges in the final Nimslo prints!

The next section explains the use of a Nimslo for creating side-by-side stereo prints for viewing in a stereoscope. Basic trimming and mounting tips are given, with The World of 3-D by Jac. G. Ferwerda mentioned as a source of more detailed instructions on mounting both prints and slides. Stereo Nimslo slides are covered next in considerable detail — including the proper use of the special Sigma masks, 3-D slide viewers, projection, and separate 2" × 2" mounts.

Techniques for Nimslo close-ups and alteration of the film speeds are also included, along with illustrations of Nimslo modifications available by mail-order, like the Burdlo and the Teco-Nimslo (see May/June '86, page 26). The information provided in the book is clear and precise, and should make it possible for any novice reading it to enter the world of 3-D photography. One page is devoted to other sources of information including the NSA & STEREO WORLD, the ISU, and the PSA Stereo Division.

It should be kept in mind that this is not a book about the Nimslo company. That complex and controversial history is yet to be written, and will be hundreds of pages longer than The Nimslo 3-D Book, when and if it ever appears. Despite all the efforts of its designers to lock the Nimslo (and its users) into a tightly programmed and controlled system, this first new 3-D camera since the 1950's has proven more flexible than thought at first. Whether used as-is or modified from the outside or the inside, the Nimslo is more than just a high-tech gimmick that failed. It's a functioning stereo camera which, whether we like it or not, has dragged stereography into the electronic automation market of the '80s. People who are intimidated by the mechanisms of a camera like the Realist (and this includes a number of experienced photographers) can grab a Nimslo or a Burdlo or a Teco-Nimslo and quickly start taking stereographs of a quality probably better than they could manage with a '50s era camera. Limited as the potential of the Nimslo may be when compared to a "classic" camera, its potential of its own — and we could have done far worse!

The Nimslo 3-D Book presents all this potential in one compact package of information. Published in 1986 by Reel 3-D Enterprises, the book is 8 1/2 " x 11 ", 28 pages, softcover. Available from Reel 3-D Enterprises, PO Box 35, Duarte, CA 91010 for $7.95 plus $1.50 shipping.

—J.D.
For Sale

ElnaRGER, Durst M—600 35mm to 2½ sq., double condenser, glass negative carrier, filter drawer, baseboard, spare bulb, IB. Like new condition. $50 plus UPS shipping. R. McClellan, (602) 981-9563.

THE RED WING VIEWER, a fine stereoscope handcrafted in walnut, leather, brass, and glass. $78 includes stand and US shipping. For ordering or more information: Welch Village Woodworking, Rt. 2, Box 18, Welch, MN, 55089, (612) 388-5304.


3-DIMENSIONAL TRADING CARDS in 1983 to promote the film Jaws 3-D, a series of anaglyphic cards were issued and hastily withdrawn when the film flopped making them a very rare and collectible 3-D item. Free viewer in each pack. 3 pk's—$1.008 pk's—$2.00 PPD. R. Aldrich, 535 Taylor St. #601, San Francisco, CA, 94102.

REALISTS. 1-1 Button EX + $120, 1-2 Button $130. Both w/EX + cases, 1 “45” VG + w/EX + case. Bank Orders please. All prices + $10. shipping. SASE. Glenn Zimpelmann, 602A N. 112th St., Wauwatosa, WI 53226.

STEREO REALIST camera, 13.5 lens. Fine operating condition. $125. with case. R. Hoffstein, 513 College Ave., Haverford, PA, 19041, Tel (215) 642-0880.


OLD KEY WEST in 3-D—A handsome 64-page book with viewer to enjoy stereographs of this fascinating island reproduced in rich duotones. The book discusses stereography in Key West from the 1870s to the 1920s with emphasis on the Spanish-American War. Single copy $14.95 plus $1.50 shipping and Florida Sales tax if applicable from the Langley Press, 1608 Annette Ave., Library, Pa. 15129.

WOULD LIKE TO CORRESPOND with collectors of military, naval, and war views for minor 19th century conflicts (not civil, Boer, or Spanish-American wars). Especially interested in English set of views “The Field of Waterloo” of about 1860. T.K. Treadwell, 4201 Nagle, Bryan, TX, 77801.


STEREO FIGURE slides wanted. Also have some for trade. H. Komar, 50 Plaza Square #707, St. Louis, MO, 63103.


RE MARBLES—Trade cards, post cards, stereo cards, tokens, or medals awarded to people at marble competitions. Top prices paid. Bertram Cohen, 169 Marlborough St., Boston, MA, 02116.

ST. AUGUSTINE, Florida stereo and other images. Also, early Hampton Institute, early Carlisle Indian School, Southern Plains Indians. Native American Printing Reference Library, Box 32434, Oklahoma City, 73123.

CAN ANYONE HELP, perhaps a German member? Wanted the 50mm f/2.8 objective from an East German Werra camera of the mid-60s or a whole Werra camera in any condition as long as the glass is good. Bernard Clifton, Box 181, Hartford, N.Y. 12838, (518) 632-5260.

WALT WHITMAN stereo view, cdv or cabinet card wanted. Also want Puerto Rico stereos and real photo post cards. Please send xerox copy or on approval to Fred Rodriguez, PO. Box 112005, Miami, FL, 33111.


POST OFFICE related photographs in any format wanted. RFD wagons and carriers on post cards, mailmen, interiors of post offices, real photo post cards and postal history wanted. Send on approval or xerox to Fred Rodriguez, PO. Box 112005, Miami, FL, 33111.

GOLD & SILVER MINING: All original photographic images (stereo views, etc) up to 1910 (no foreign). Prospectors, mine interiors, exteriors, mining equipment, mining towns, etc. Also, wanted anything Numismatic, views of U.S. Mints & Assay Office (Philadelphia, New Orleans, San Francisco, Denver, etc) and mint and coinage operations. Also, views of U.S. Bureau of Engraving & Printing (Washington, DC) and its paper money operations. Plus any similar views of private Banknote Engravers. Please send photocopies with price and description, or send for my approval. I will respond quickly. David Sundman, Littleton Coin Company, 253 Union St., Littleton, N.H. 03561.

SHAKER people stereo views, real photos, snapshots, etc. Please send photocopy with price to Richard Brooker, 450 East 84th Street, New York, N.Y. 10028.


FLORIDA STEREOS of historical value, especially Tallahassee, Tampa and Gainesville. Price and describe or send on approval; highest prices paid for pre-1890 views. No St. Augustine Hendrikens, PO. Box 21153, Kennedy Space Center, FL, 32815.

MUYBRIDGE VIEWS, Calif. or Alaska. Harry Porter, 3524 University Bl., Dallas, TX, 75205.

NEBRASKA, Kansas, and other midwest states. Want to buy early stereo views, scenic CDVs and Cabinets, early town viewbooks, small town photo post cards. Don Ulrich, 1625 South 23, Lincoln, NE, 68502.


Wanted

STEREO PRINTING—Need name and address of service to develop and print (in stereo size) film from Kodak 35mm stereo. My company quit. Thanks. Ed Cantlon, 1608 Annette Ave., Library, Pa. 15129.


POST OFFICE related photographs in any format wanted. RFD wagons and carriers on post cards, mailmen, interiors of post offices, real photo post cards and postal history wanted. Send on approval or xerox to Fred Rodriguez, PO. Box 112005, Miami, FL, 33111.

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Events

Sept. 7

Sept. 13-14
Detroit Area Photorama USA. Dearborn Civic Center, Dearborn, MI. Contact Sam Vinegar, 20219 Mack Ave., Grosse Pointe Woods, MI 48236. Call 313-884-2242.

Sept. 13-14
20th Semi-Annual Photographic Collectors of Houston Camera and Image Show and Sale. Holiday Inn, 2712 Southwest Freeway at Kirby Dr. Contact Leonard Hart, c/o The Heights Gallery, 1613 Oxford St., Houston, TX 77008. Call 713-868-9606.

Sept. 14
Reading PA Camera Show & Sale. Holiday Inn, North Reading. Contact Photographic Associates, PO Box 964, Carlisle, PA 17013. Call Bob Pare 717-258-5261.

Sept. 14

Sept. 20-21

Sept. 21—NSA EVENT
NSA NEW ENGLAND REGIONAL MEETING featuring a STEREO CLINIC led by Paul Wing, and including a mini trade-fair, show-and-tell, and other activities. Starts at 12 noon at the Old Edgell Library, Oak Street at Edgell Road, Framingham, MA. Contact David Berenson, 32 Colwell Ave., Brighton, MA 02135. Call 617-254-1565.

Sept. 28
American Society of Camera Collectors Fall Show, Burbank, CA. Contact Gene Lester, 4918 Alcove Ave., North Hollywood, CA. Call 818-769-6160.

Sept. 28
Annual Fall D.C. Antique Photographic Show, Hyatt Regency Crystal City, 2799 Jefferson Davis Hwy., Arlington, VA. Contact Russell Norton, PO Box 1070, New Haven, CT 06504. Call 203-562-7800.

Sept. 28
Barone Camera Swap Meet, Holiday Inn (Crystal City) Arlington, VA. Contact: Camera Swap Meet c/o Barone Co., PO Box 18043, Oxon Hill, MD 20745. Call 703-768-2231.

Oct. 18-19
The Boston Show, the 26th show sponsored by the Photographic Historical Society of New England, at the Armenian Cultural Center, 47 Nichols Ave., Watertown (Boston) MA. Contact PHSNE c/o David Berenson, 32 Colwell Ave., Brighton, MA 02135. Call 617-254-1565 3 to 11 p.m., Eastern Time.

Oct. 19

Oct. 25 NSA EVENT
NSA SOUTHCENTRAL REGIONAL MEETING, hosted by the Vintage Camera Club of Wichita. Saturday 10:00-5:00 at St. Paul’s Methodist Church, 13th & North Broadway, Wichita, Kansas. Contact Betty or Kirk Graham, 2562 Victoria, Wichita, Kansas 67216. Call 316-265-0393.

Oct. 26
Midwest Photographic Historical Society Collectors Show, Earth City Harley Inn, St. Louis, MO. Contact Jerry Smith, 19 Hazelnut Ct., Florissant, MO 63033. Call 314-921-3076 eves.

Nov 1

Nov 2
Photographic Collectors of Tucson, 5th Camera & Photographica Show. Contact PCT, PO Box 18646, Tucson, AZ 85731. Call 602-298-6247.

Nov 2
Photographic Collectors of Tucson, 5th Camera & Photographica Show. Contact PCT, PO Box 18646, Tucson, AZ 85731. Call 602-298-6247.

Nov 2

Nov 2
1st Louisville Area Photorama USA, Executive Inn, 978 Philips Lane, Louisville, KY. Contact Sam Vinegar, 20219 Mack Ave., Grosse Pointe Woods, MI 48236. Call 313-884-2242.

Nov 9
ARIZONA TERRITORIAL STEREOGRAPHY

(continued from page 16)

West Side Plaza Montezuma [Prescott].
Plaza Stable, Prescott.
Curtis' Saw Mill.

VIEWS OF ARIZONA SCENERY./D. F. MITCHELL,/ PHOTOGRAPHIC ARTIST.—[printed on back of mount]—1870s—
yellow, buff, and orange/lavender mounts.
Street in Florence, 1878.
Street in Phoenix, 1879.
Enterprise Office [Prescott].
Gurley St. Prescott, Granite Mt. in distance.
Stoneman's Lake.
Stoneman's Lake.
Great Rock North Stoneman Lake.
D. F. MITCHELL, /PHOTOGRAPHER,/PRESCOTT, A.T.—[printed
on back of mount]—early 1880s—orange/pink mounts.
Prescott in Winter from the North West.
Mineral Park.
Nigger Head, Mineral Park.
D. F. Mitchell/Prescott, A.T.—[gothic lettering]—1880s—
orange/lavender and orange/pink mounts.
Camp at Stoneman's Lake. My camp at Stoneman's Lake—Mogollon Mts.
After the Fire of the night of July 29th 1880.
After the Fire, Fire on July 29, 1880.
Prescott in Winter—1880—from the northwest.
Prescott in Winter—1880—from the southeast.
Heads Block—Gurley St., Prescott.
Democrat Office, Cortez St.—Prescott.
Prescott in Winter—1886 from the southeast.
Mountain in background is ‘Granite Mt.’
San Xavier Mission.
Left of Main Altar, San Xavier Mission.
Right of Main Altar, San Xavier Mission.
Main Altar, San Xavier Mission.

VIEWS OF ARIZONA SCENERY./D. F. MITCHELL,/Photographie Artist./PRESCOTT ARIZONA—[imprint on back]—1880s—Cabinet
Size—buff mounts.
Montezuma St., Prescott.
VIEWS IN ARIZONA./D. F. Mitchell/Prescott, Arizona—[imprint on back]—1880s—buff mounts.
Prescott No. 3 [unidentified panorama from roof].
Prescott No. 5 [Unidentified panorama from roof—different angle].
St. James, Lynx Creek.

VIEWS IN ARIZONA./Mitchell & Baer./ Prescott, Arizona.—[imprint on back similar to previous]—1880s—buff mounts.
Prescott No. 8. Cortez St. —Goldwater Store—Plaza Fence.
Prescott No. 9. S. Cortez.
Smith's Mill near Phoenix.
Salt River Valley.

FROM the SOCIETY NOTEBOOK
(continued from page 17)

our skills in the taking of the view. In this area the members
can look to our own history of color stereo for it is almost
totally confined to 35mm. There was a period when great
acclaim was given to the enthusiast who processed his own
film! I was not one who awarded merit because a member
did his own color processing. It was then and is now bet-
ter done by commercial processors. I am of the opinion that
the basics that should be strictly adhered to in good picture
work should embrace the following:

“All water, lake, ocean, and landscapes should be taken
level...not tilted. This can only be handled in TAKING as
no correction by rotation is really acceptable. Stereo creates
the 3rd dimension so another important necessity is the in-
clusion of distance relationships of objects in the scene.
Involved in this is the important 'WINDOW'. Exposure is im-
portant...there is a correct exposure and it should be
'right-on' to be best. Here also lies the complete utilization
of the frame within which the subject is placed. The
viewfinder shows our 'WINDOW' so try to place all
elements within this area with consideration for two dimen-
sional as well as three dimensional placement. Here is
where the experts can excel. We originally see the subject
in 3-D, look at it through our viewfinder in 2-D, and upon
completion finally see it in 3-D! The final outcome, if all
of these factors of judgement and control are used to best ad-
vantage, is a good presentation of our choice of subject. I
am not in favor of a folio for a given subject (so-called
Assignment Folios) because all of us cannot excel at
everything. Let us work at the line of our best capabilities
and be known for that. Our entries will then represent our
finest efforts in our own choice of subject matter.'

SOCIETY MEMBERSHIP: If you take stereo views and
have been thinking of joining the Society, why not take the
plunge? Write to the Corresponding Secretary, Jack E.
Cavender, 1677 Dorsey Avenue, Suite C, East Point, GA
30344.
The N.S.A. has been divided into 12 geographic regions with a Regional Director assigned to each to act as the representative in your area. We hope members will work with them to promote the N.S.A., increase membership and establish regular regional meetings. We are pleased to announce the establishment of a region for our Canadian members, with Martin & Gail Bass as Directors. Also, the map below reflects Directorship and address changes in several regions.

Tom Rogers, Vice President for Regional Affairs
1111 12th St., Huntsville, Tex. 77340

**NORTHWEST**
Washington, Oregon, Alaska, Montana, Idaho
John Dennis
5610 SE 71st St.
Portland, Oregon 97206

**CENTRAL MIDWEST**
Illinois, Indiana, Missouri, Michigan
Tom & Pam Heseltine
Rt. #2
Manhattan, Ill. 60442

**DELWARE VALLEY**
Pennsylvania, Delaware, New Jersey, Upstate New York
Bill Zulker
134 Poplar Ave.
Wayne, Pa. 19087

**CANADA**
Martin & Gail Bass
130 Normandy Gardens
London, Ontario
Canada N6H 4B2

**UPPER MIDWEST**
Minnesota, Wisconsin, Iowa, North and South Dakota
Craig Daniels
1234 Phelps
Red Wing, Minn. 55066

**EASTERN MIDWEST**
Kentucky, Ohio, West Virginia, Tennessee
Jack & Pat Wilburn
3607 Brownsboro #16
Louisville, Ky. 40207

**NEW ENGLAND**
Maine, New Hampshire, Vermont, Massachusetts, Connecticut, Rhode Island
David Berenson
32 Colwell Ave.
Brighton, Ma. 02135

**SOUTHWEST**
California, Hawaii, Nevada, Arizona
Northern Area—
Vacant
Southern Area—
Bill Shepard
17350 E. Temple Ave.
#399
La Puente, Ca. 91744

**SOUTH CENTRAL**
Texas, Oklahoma, Kansas, Louisiana, Arkansas
Tom Rogers
1111 12th St.
Huntsville, Tex. 77340

**MOUNTAIN**
Colorado, Utah, Wyoming, New Mexico, Nebraska
Ed Bathke
112 Palisade Circle
Manitou Springs, Colo. 80829

**SOUTHEAST**
Florida, Alabama, Georgia, Mississippi, South Carolina
Michael Griffith
4316 Hale Drive
Lilburn, Ga. 30247
Filming wild (but trained) Canadian Geese in 70mm 3-D for the Expo 86 film "Ontari-Oh!"
For more about the film, the camera, and the geese, read Don Marren's article THE EXPO 86 3-D FILMS in this issue.